

CLAIMS

1. A peripheral interface device that is adaptable into a computer system and which provides a communication interface for a plurality of external devices, the peripheral interface device comprising:

a plurality of transfer control logic (TCL) modules, wherein each TCL module provides a dedicated interface for an associated one of the external devices, and wherein multiple TCL modules can communicate in parallel with their associated external devices; and

a dual port memory (DPM) device that is in communication with an input/output bus of the computer system, wherein the DPM device can selectively communicate with each of the plurality of TCL modules.

2. The peripheral interface device of claim 1, wherein each of TCL modules communicates with the DPM device in a round robin fashion.

3. The peripheral interface device of claim 1, wherein each TCL module includes a system for initiating a write transfer to its associated external device.

4. The peripheral interface device of claim 3, wherein the system for initiating a write transfer places a write control signal on a dedicated write control signal line connecting the TCL module to its associated external device.

5. The peripheral interface device of claim 4, wherein the system for initiating a write transfer further supplies a count to the external device to indicate a number of bytes that is to be written.
6. The peripheral interface device of claim 1, wherein each TCL module includes a system for initiating a read transfer from its associated external device.
7. The peripheral interface device of claim 6, wherein the system for initiating a read transfer places a read control signal on a dedicated read control signal line connecting the TCL module to its associated external device.
8. The peripheral interface device of claim 7, wherein the system for initiating a read transfer further supplies a count to the external device to indicate a number of bytes that are to be read.
9. The peripheral interface device of claim 1, wherein each TCL module includes a system for handling a read transfer request from its associated external device.
10. The peripheral interface device of claim 1, wherein the DPM includes a set of write transfer regions for each TCL module region, wherein each write transfer region is utilized to store data being transferred from the computer system to a target TCL module.

11. The peripheral interface device of claim 1, wherein each TCL module includes a control register for controlling data transfers between the computer system and the TCL module.
12. The peripheral interface device of claim 1, wherein the DPM stores read data available to the computer system, wherein the read data includes register data from an external device, urgent external device data, or TCL status data.
13. The peripheral interface device of claim 1, wherein each TCL includes a system for accepting urgent data from the associated external device, and transferring the urgent data to the DPM.
14. The peripheral interface device of claim 13, wherein the urgent data includes an interrupt signal.
15. The peripheral interface device of claim 1, wherein said device consists of a PCI adapter card.
16. The peripheral interface device of claim 15, wherein the input/output bus comprises a PCI bus.

17. A computer system, comprising:

- a processing unit;
- a memory;
- an I/O bus coupled to the processing unit and memory; and
- a peripheral interface device which provides a communication interface for a plurality of external devices, wherein the peripheral interface device includes:

- a plurality of transfer control logic (TCL) modules, wherein each TCL module includes an interface for a dedicated external device, and wherein multiple TCL modules can communicate in parallel with their respective dedicated external devices; and

- a dual port memory (DPM) device that is in communication with the I/O bus, wherein the DPM device can selectively communicate data with each of the plurality of TCL modules.

18. The computer system of claim 17, wherein each of TCL modules communicates with the DPM device in a round robin fashion.

19. The computer system of claim 17, wherein each TCL module includes a system for initiating a write transfer to its dedicated external device.

20. The computer system of claim 19, wherein the system for initiating a write transfer places a write control signal on a dedicated write control signal line connecting the TCL module to its dedicated external device.

21. The computer system of claim 20, wherein the system for initiating a write transfer further supplies a count to the external device to indicate a number of bytes that is to be written.

22. The computer system of claim 17, wherein each TCL module includes a system for initiating a read transfer from its dedicated external device.

23. The computer system of claim 22, wherein the system for initiating a read transfer places a read control signal on a dedicated read control signal line connecting the TCL module to its dedicated external device.

24. The computer system of claim 23, wherein the system for initiating a read transfer further supplies a count to the external device to indicate a number of bytes that are to be read.

25. The computer system of claim 17, wherein each TCL module includes a system for handling a read transfer request from its dedicated external device.

26. The computer system of claim 17, wherein the DPM includes a set of write transfer regions for each TCL module region, wherein each write transfer region is utilized to store data being transferred from the I/O bus to a target TCL module.

27. The computer system of claim 17, wherein each TCL module includes a control register for controlling data transfers between the I/O bus and the TCL module.
28. The computer system of claim 17, wherein the DPM stores read data available to the I/O bus, wherein the read data includes register data from an external device, urgent external device data, or TCL status data.
29. The computer system of claim 17, wherein each TCL module includes a system for accepting urgent data from the dedicated external device, and transferring the urgent data to the DPM.
30. The computer system of claim 29, wherein the urgent data includes an interrupt signal.
31. The computer system of claim 17, wherein said peripheral interface device consists of a PCI adapter card.
32. The computer system of claim 31, wherein the I/O bus comprises a PCI bus.

33. An interface card adaptable into a computer system to provide communications to a plurality of external devices, wherein the interface card includes:

a plurality of transfer control logic (TCL) modules, wherein each TCL module includes a system for independently interfacing with a dedicated external device;

a memory device that is in communication with an I/O bus of the computer system; and

control logic that provides shared communications between the memory device and the plurality of TCL modules.

34. The interface card of claim 33, wherein each TCL includes:

means for initiating a write transfer to the dedicated external device;

means for initiating a read transfer from the dedicated external device; and

means for handling a read transfer from the dedicated external device.

35. The interface card of claim 33, wherein the memory device communicates with each of the plurality of TCL modules in a round robin manner.